

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

1. (Currently Amended) A storage system for protecting data on a physical volume at the file system level and permitting access to the data at the physical volume level comprising:

a first interface for file level input/output (I/O);
a second interface for block level I/O;
a plurality of physical volumes upon which logical volumesfile systems are represented;
a first controller which processes file level I/O requests; and
a second controller which processes block level I/O requests,
wherein, in response to a file system protect request directed to a particular logical volumefile system with a specified period of time, the particular logical volumefile system is protected for the specified period of time and a physical volume of the particular logical volumefile system is also protected for the specified period of time, and

wherein once the particular logical volumefile system is protected, write requests to the particular logical volumefile system or physical volume of the particular logical volumefile system via either the first or second controller are not permitted until expiration of the specified period of time.

wherein information regarding whether or not the particular logical volumefile system is protected is stored in a volume status table having a plurality of entries which indicate statuses of the particular logical volumefile system, and

wherein said entries include a first status indicating a retention period for the particular logical volumefile system, the retention period indicating how long data in the particular logical volumefile system should remain unchanged and thereby determining when data can next be written to the particular logical volumefile system.

2-5. (Canceled).

6. (Currently Amended) A storage system according to claim 1, wherein said entries indicate a second status of each file systemvolume defining whether the file systemvolume is exported or un-exported.

7-8. (Canceled).

9. (Original) A storage system according to claim 1, wherein said first controller is a network attached storage controller which processes file level I/O requests.

10. (Previously Presented) A storage system according to claim 1, wherein said second controller is a disk controller which processes block level I/O requests.

11. (Original) A storage system according to claim 1, wherein said first interface is an Ethernet interface which processes file level I/O requests.

12. (Original) A storage system according to claim 1, wherein said second interface is a Fibre Channel interface which processes block level I/O requests.

13. (Currently Amended) A storage system for protecting data on a physical volume at the file system level and permitting access to the data at the physical volume level comprising:

a network attached storage (NAS) gateway; and

a storage system which is connected to said NAS gateway,

wherein said NAS gateway comprises:

a first interface for file level I/O,

a third interface for block level I/O, and

a first controller which processes file level I/O requests,

wherein said storage system comprises:

a second interface for block level I/O, said second interface being connected to said third interface,

a plurality of physical volumes upon which ~~logical volumes~~file systems

are represented, and

a second controller which processes block level I/O requests,
wherein, in response to a file system protect request directed to a particular
logical volume file system with a specified period of time, the particular logical
volumefile system is protected for the specified period of time and a physical volume
of the particular logical volumefile system is also protected for the specified period of
time,

wherein once the particular logical volumefile system is protected, write
requests to the particular logical volumefile system or physical volume of the
particular logical volumefile system via either the first or second controller are not
permitted until expiration of the specified period of time,

wherein information regarding whether or not the particular logical volumefile
system is protected is stored in a volume status table having a plurality of entries
which indicate statuses of the particular logical volumefile system, and

wherein said entries include a first status indicating a retention period for the
particular logical volumefile system, the retention period indicating how long data in
the particular logical volumefile system should remain unchanged and thereby
determining when data can next be written to the particular logical volumefile system.

14-16. (Canceled).

17. (Currently Amended) A storage system according to claim 13, wherein said entries indicate a second status of each file systemvolume defining whether the file systemvolume is protected or unprotected.

18. (Currently Amended) A storage system according to claim 13, wherein said entries indicate a second status of each file systemvolume defining whether the file systemvolume is exported or un-exported.

19-20. (Canceled).

21. (Original) A storage system according to claim 13, wherein said first controller is a network attached storage controller which processes file level I/O requests.

22. (Previously Presented) A storage system according to claim 13, wherein said second controller is a disk controller which processes block level I/O requests.

23. (Original) A storage system according to claim 13, wherein said first interface is an Ethernet interface which processes file level I/O requests.

24. (Original) A storage system according to claim 13, wherein said second interface is a Fibre Channel interface which processes block level I/O requests.

25. (Currently Amended) A storage system for protecting data on a physical volume at the file system level and permitting access to the data at the physical volume level comprising:

a first interface for file level input/output (I/O);

a second interface for block level I/O;

a plurality of physical volumes upon which ~~logical volumes~~file systems are represented;

a first controller which processes file level I/O requests; and

a second controller which processes block level I/O requests,

wherein, in response to a file system protect request directed to a particular ~~logical volume~~file system with a specified period of time, the particular ~~logical volume~~file system is protected for the specified period of time and a physical volume of the particular ~~logical volume~~file system is also protected for the specified period of time,

wherein once the particular ~~logical volume~~file system is protected, write requests to the particular ~~logical volume~~file system or physical volume of the particular ~~logical volume~~file system via either the first or second controller are not permitted until expiration of the specified period of time

wherein information regarding whether or not the particular logical volumefile system is protected is stored in a volume status table having a plurality of entries which indicate statuses of the particular logical volumefile system, and

wherein said entries include a first status indicating a retention period of the particular logical volumefile system, the retention period indicating how long data in the particular logical volumefile system should remain unchanged and thereby determining when data can next be written to the particular logical volumefile system.

26-27. (Canceled).

28. (Currently Amended) A storage system according to claim 25, wherein said entries indicate a second status of each file systemvolume defining whether the file systemvolume is exported or un-exported.

29. (Original) A storage system according to claim 25, wherein said first controller is a network attached storage controller which processes file level I/O requests.

30. (Previously Presented) A storage system according to claim 25, wherein said second controller is a disk controller which processes block level I/O requests.

31. (Original) A storage system according to claim 25, wherein said first interface is an Ethernet interface which processes file level I/O requests.

32. (Original) A storage system according to claim 25, wherein said second interface is a Fibre Channel interface which processes block level I/O requests.

33. (Currently Amended) A storage system for handling input/output (I/O) requests from a plurality of servers, wherein a first server of the servers sends file I/O requests and a second server of the servers sends block I/O requests, comprising:

a storage media including a plurality of volumes, ~~at least one of the volumes stores~~ data of file systems;

a first controller, to be coupled to the first server, conducting I/O operations in response to the file I/O requests; and

a second controller, coupled to the storage media, to be coupled to the second server, conducting I/O operations in response to the block I/O requests;

wherein at least one file system ~~volume of the file systems~~ volumes which stores the data of file system is set to be write-protected from the second controller when the first controller receives a request from the first server to protect ~~the said at least one~~ file system in the storage media for a specified period of time,

wherein information regarding whether or not said at least one file systemvolume is protected is stored in a volume status table having a plurality of entries which indicate statuses of said at least one file systemvolume, and

wherein said entries include a first status indicating a retention period of said at least one file systemvolume, the retention period indicating how long data in said at least one file systemvolume should remain unchanged and thereby determining when data can next be written to said at least one file systemthe volume.

34. (Currently Amended) The storage system according to claim 33, wherein the first and second controllers share protection information including a status of protection and a retention period for each of the file systemsvolumes which is set-at file system level by the first controller.

35. (Previously Presented) The storage system according to claim 33, wherein the first controller receives the file I/O requests via a first interface and the second controller receives the block I/O request via a second interface.